查询2SC3127, 2SC3128, 2SC3510供应商

2SC3127, 2SC3128, 2SC3510

Silicon NPN Epitaxial

HITACHI

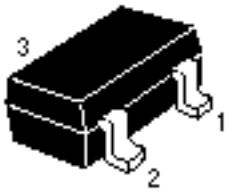
Application

UHF/VHF wide band amplifier

Outline

MPAK

2SC3127

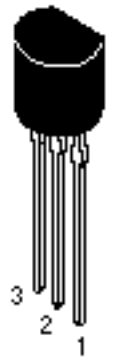


1. Emitter
2. Base
3. Collector

Hitachi semiconductor

TO-92 (2)

2SC3128, 2SC3510



1. Base
2. Emitter
3. Collector

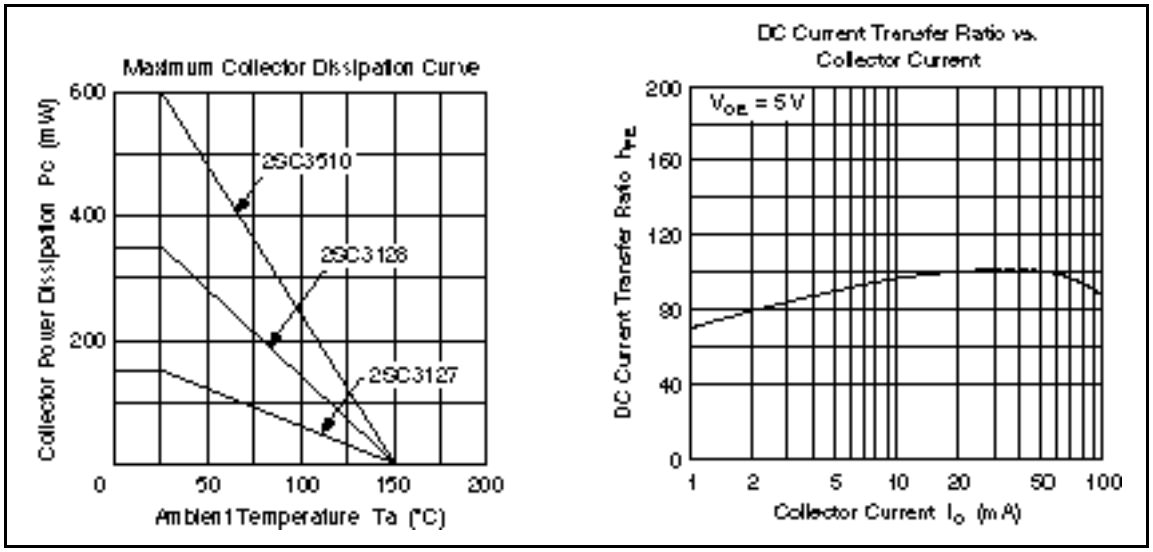
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SC3127*[1]	2SC3128	2SC3510	Unit
Collector to base voltage	V_{CBO}	20	20	20	V
Collector to emitter voltage	V_{CEO}	12	12	12	V
Emitter to base voltage	V_{EBO}	3	3	3	V
Collector current	I_C	50	50	50	mA
Collector power dissipation	P_C	150	350	600	mW
Junction temperature	Tj	150	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	–55 to +150	°C

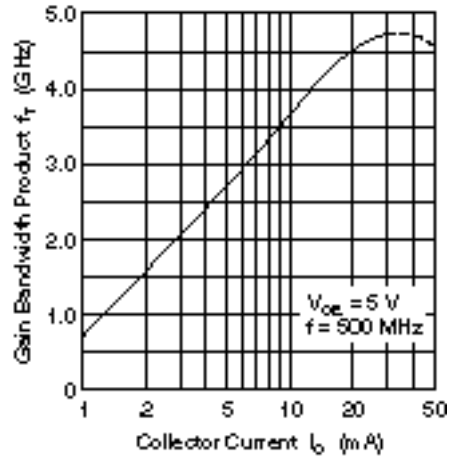
Note: 1. Marking for 2SC3127 is “ID–”.

Electrical Characteristics (Ta = 25°C)

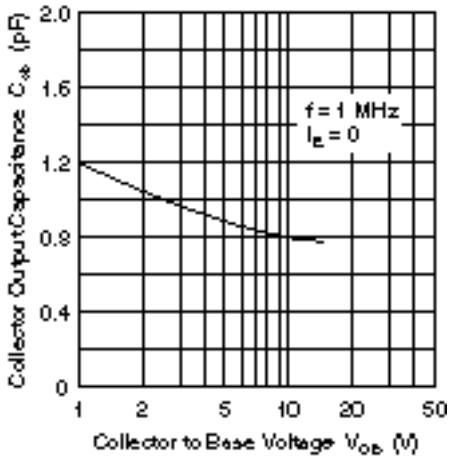
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	12	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter cutoff current	I_{EBO}	—	—	10	µA	V_{EB} = 3 V, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.5	µA	V_{CB} = 12 V, I_E = 0
DC current transfer ratio	h_{FE}	30	90	200		V_{CE} = 5 V, I_C = 20 mA
Collector output capacitance	Cob	—	0.9	1.5	pF	V_{CB} = 5 V, I_E = 0, f = 1 MHz
Gain bandwidth product	f_T	3.5	4.5	—	GHz	V_{CE} = 5 V, I_C = 20 mA
Power gain	PG	—	10.5	—	dB	V_{CE} = 5 V, I_C = 20 mA, f = 900 MHz
Noise figure	NF	—	2.2	—	dB	V_{CE} = 5 V, I_C = 5 mA, f = 900 MHz



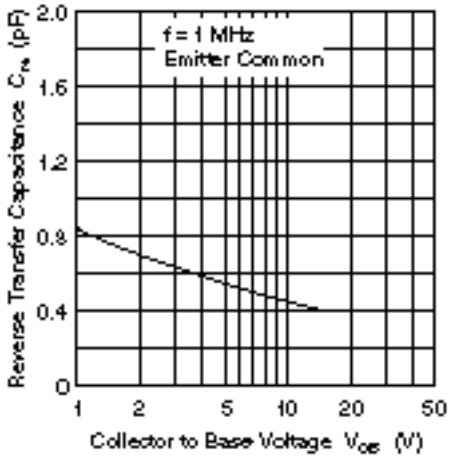
Gain Bandwidth Product vs. Collector Current



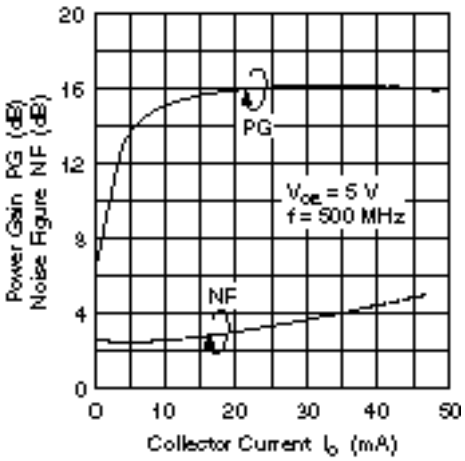
Collector Output Capacitance vs. Collector to Base Voltage



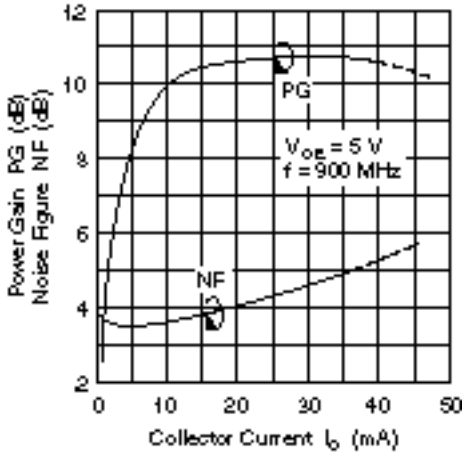
Reverse Transfer Capacitance vs. Collector to Base Voltage



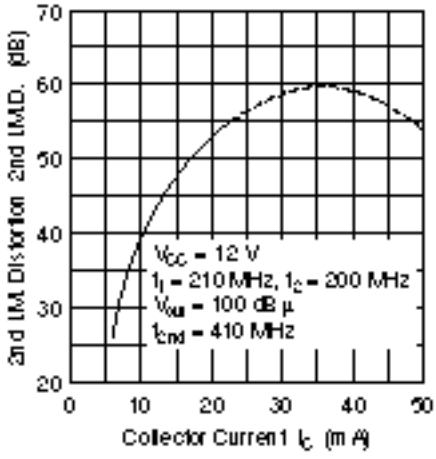
Power Gain and Noise Figure vs. Collector Current

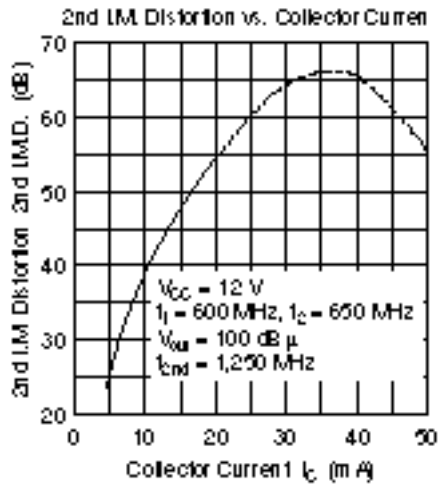


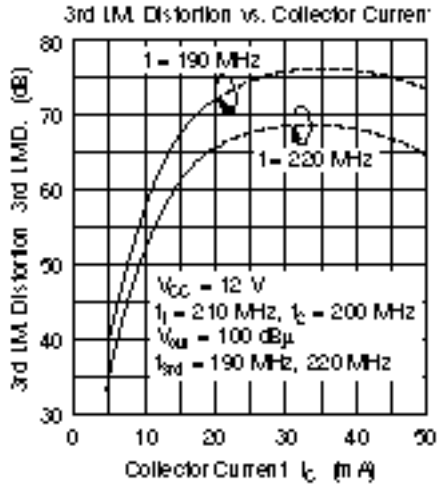
Power Gain and Noise Figure vs. Collector Current

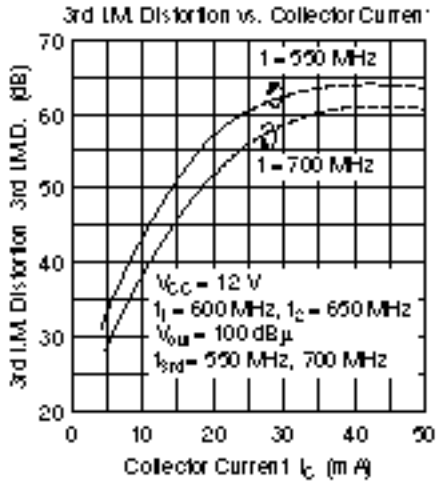


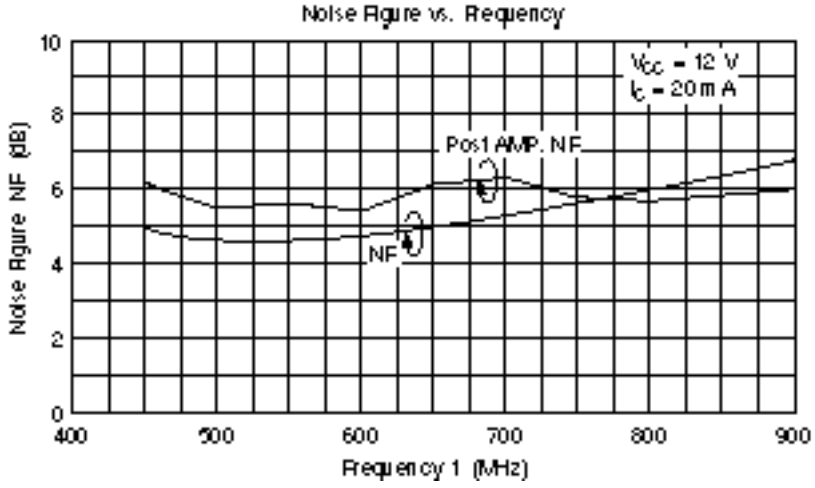
2nd IM Distortion vs. Collector Current

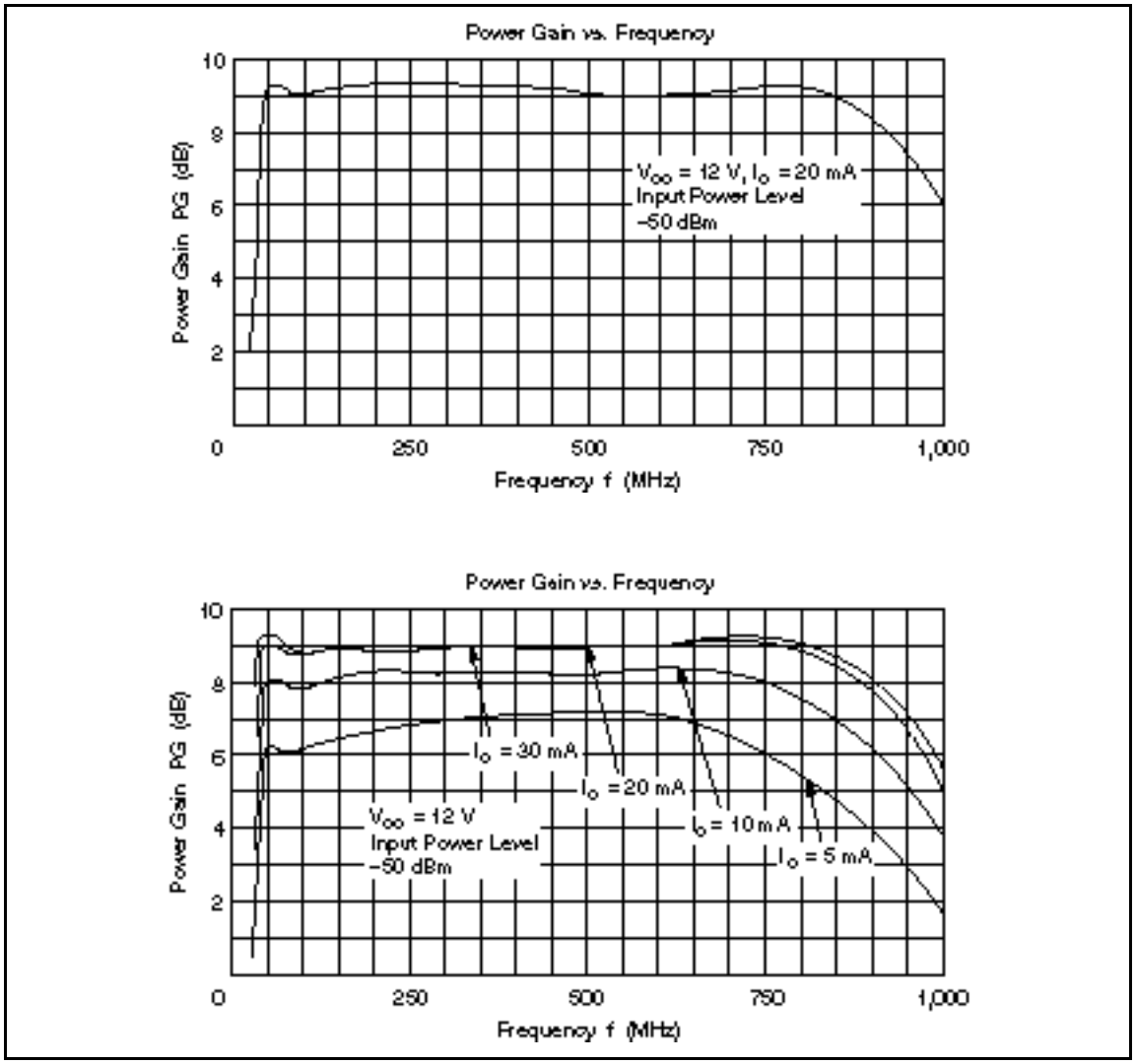



2nd I.M. Distortion vs. Collector Curren
2nd I.M. Distortion 2nd I.MD. (dB)
70
60
50
40
30
20
0
10
20
30
40
50
Collector Current I_C (m A)
V_CC = 12 V
f_1 = 600 MHz, f_2 = 650 MHz
V_out = 100 dBμ
f_2nd = 1,250 MHz

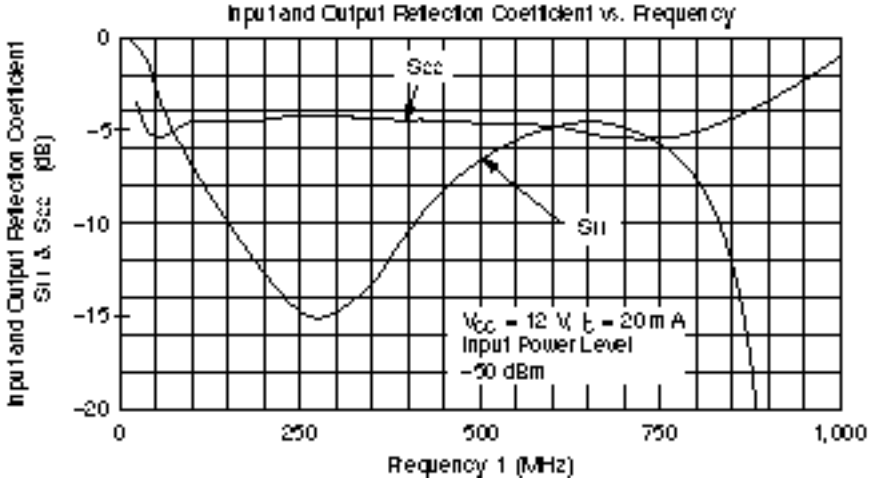

3rd I.M. Distortion vs. Collector Curren
3rd I.M. Distortion 3rd I.MD. (dB)
80
70
60
50
40
30
0
10
20
30
40
50
Collector Current I_C (m A)
f = 190 MHz
f = 220 MHz
V_CC = 12 V
f_1 = 210 MHz, f_2 = 200 MHz
V_out = 100 dBμ
f_3rd = 190 MHz, 220 MHz


3rd I.M. Distortion vs. Collector Curren
3rd I.M. Distortion 3rd I.MD. (dB)
70
60
50
40
30
20
0
10
20
30
40
50
Collector Current I_C (m A)
f = 550 MHz
f = 700 MHz
V_CC = 12 V
f_1 = 600 MHz, f_2 = 650 MHz
V_out = 100 dBμ
f_3rd = 550 MHz, 700 MHz

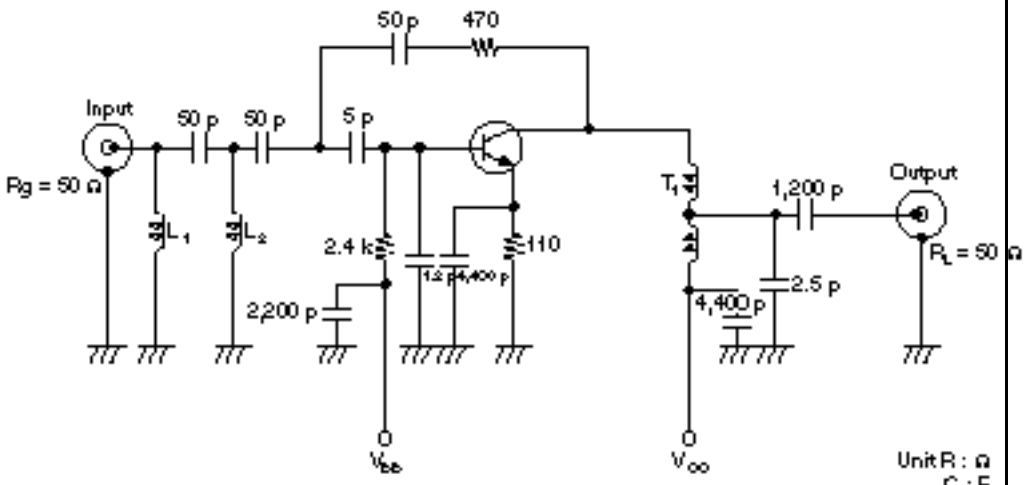

Noise Figure vs. Frequency
Noise Figure NF (dB)
10
8
6
4
2
0
400
500
600
700
800
900
Frequency f (MHz)
V_CC = 12 V
I_C = 20 m A
Pos1 AMP. NF
NF


Power Gain vs. Frequency
Power Gain PG (dB)
10
8
6
4
2
0
250
500
750
1,000
Frequency f (MHz)
V_{CC} = 12 V, I_O = 20 mA
Input Power Level
–50 dBm
Power Gain vs. Frequency
Power Gain PG (dB)
I_O = 30 mA
I_O = 20 mA
I_O = 10 mA
I_O = 5 mA
V_{CC} = 12 V
Input Power Level
–50 dBm
Frequency f (MHz)

Input and Output Reflection Coefficient vs. Frequency



Vhf to Uhf Wide Band Amp. Circuit



Parts Specification
L_1 : Inside dia φ3.0 mm, φ0.4 mm Polyurethane Coated Copper wire 12 Turns.
L_2 : Inside dia φ3.5 mm, φ0.5 mm Polyurethane Coated Copper wire 9 Turns.
T_1 : Balance wind used Ferrite Core
Outside dia φ4.0 mm, Inside dia φ2.0 mm
φ0.1 mm Polyurethane Coated Copper wire 3 Turns.
Ratio Input to Output is 2 : 1

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